

From qrp-1@lehigh.edu Sun Feb 11 22:22:48 1996
From: al507@detroit.freenet.org (John W. Kelly)
Subject: [4143] 40 meter beacon
Message-ID: <199602120109.UAA18332@detroit.freenet.org>

I heard the beacon and copied the code words at all 4 power levels (I think). The 200uw level was challenging. Turns out I copied it using a sloping mono pole (that's what's left of a dipole vee after the wind amputated 1 leg), and my ts450 with every conceivable filter on. It seems like qrm is what keeps us from being able to do real qrpp. About 1 in ten ops called qrl? before blasting on the 7021 freq. Thanks Pete, for a great job with the beacon and power sequencer.

John AA8LF

From qrp-1@lehigh.edu Sun Feb 11 22:22:48 1996
From: Steve Thompson <kj7dn@primenet.com>
Subject: [4109] 40M Beacon Copied in AZ
Message-ID: <Pine.BSD.3.91.960210222140.29594B-100000@usr5.primenet.com>

Hi ...

At 0509 UTC, I copied the beacon's codeword on 7.021 ... got lucky in between some QRM, and lost it within a few minutes.

Thanks, Pete, fer giving us a beacon ... lots of fun hunting fer it!

73,

Steve

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+-----+
|
| Steve C. Thompson - KJ7DN          ----- E-mail kj7dn@primenet.com |
| Manager of Info. Technology        ----/---- steve@cpginc.com      |
| Continental Promotion Group        ----/---- |
| Tempe, AZ, USA                    ----/H--- |
|                                   H           Proud builder of the OHR |
|                                   H           WM-1 and Explorer II 40M |
|                                   H           |
|                                   H           QRP-L #259  scQRPions #1 |
| 602.731.3535                      H           |
|
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| H NWQRP #387 NorCal #1516 |
+-----+

From qrp-1@lehigh.edu Sun Feb 11 22:22:48 1996
From: Steven Wilson <randyw@crl.com>
Subject: [4126] 49er Case - What size is a Altroids
Message-ID: <Pine.SUN.3.91.960211092936.1605A-100000@crl2.crl.com>

I am not sure if I am lucky or unlucky since I have never had the experience to learn what Altroids are, do, ? Sounds like something I would not want to know. However, since a 49er will fit in one of there boxes I now feel I must learn just what these are.... Or at least I must know what size box they come in... Then we will also required a source for such empty boxes. :-)

de stan ak0b

From qrp-1@lehigh.edu Sun Feb 11 22:22:48 1996
From: kd7s@valleynet.com (Bill Jones)
Subject: [4148] 49er Judging Criteria
Message-ID: <199602120350.TAA23611@valleynet.com>

Okay, so I build my own rendition of the 49er for show-'n-tell at Dayton. What will the judges be looking for when they pick the winners?

=====
Bill Jones - KD7S <><
QRP-L Member #85
Sanger, California
Reply to kd7s@valleynet.com
=====

From qrp-1@lehigh.edu Sun Feb 11 22:22:48 1996
From: bfollett@ditell.com
Subject: [4111] 49er Parts
Message-ID: <199602110530.WAA31068@orion.ditell.com>

Byron wrote:

<<It sure would be nice if we could get a

peak at the parts list ahead a time, here on the QRP List, so we can get them on order, wouldnt it Doug H.?) he he >>

It sounds like all the "difficult parts" are already listed--EXCEPT ONE

The Crystal!! I seem to remember that Doug H. had a bunch on 7.040 for sale a while back, but they may be all gone.

So...Any bright ideas out there for a source that doesn't involve custom grinding, or other such big \$\$\$ outlay?

73, Bob

Bob Follett WA7FCU, QRP-L # 129, NorCal, ARCI, 10-10
2861 Estates Dr. VOICE: 801.649.6457
Park City, UT 84060 Home Office E-mail: bfollett.ditell.com

From qrp-l@lehigh.edu Sun Feb 11 22:22:48 1996
From: dh%reddog.csustan.edu@altair.csustan.edu (Doug Hendricks)
Subject: [4114] 49er Parts List
Message-ID: <9602110825.AA24064@reddog.csustan.edu>

Hey great idea Byron, you asked for the parts list for the 49er, so here it is. All resistors are 1/4W 5%, all caps in pF are NPO disc ceramic, and the lead spacing on the electrolytics is .08. Here is the list with Mouser and Digikey Part Numbers.

C1,C7 22pF NPO 141-100N5-022J Mouser
C2,C6 9-50pF Trimcap 24AA024 Mouser
C3,C8 .01uF Mono 21RZ410 Mouser
C11,C15
C16,C19
C4,C17 270pF NPO 140-CD50S5-271J Mouser
C5,C14 82pF NPO 141-100N5-082J Mouser
C9 3.3uF/25V Elect. or Tant. 208-50V3.3 Mouser
C10 .47uF Mono 581-470NJ63 Mouser
C12 220uF/25V Elect. 208-25V220 Mouser
C13 22uF/25V Elect. 208-50V22 Mouser
C18 470pF NPO 140-CD50S-471J Mouser
C20 150pF NPO 140-CD50N6151K Mouser
D1,D2 1N4148
R1 1K Trimpot 323-5000-1K Mouser
R2 10 ohm
R3 10M
R4,R6 120 ohm

R5 56K
 R7 10K
 RFC1,5 2.2uH 43LS226 Mouser
 RFC2 82mH (Note that is correct, mH!!) 434-02-823J Mouser
 RFC3 1mH 43LS103 Mouser
 RFC4,6 15uH 43LS155 Mouser
 Q1 J309 or J310 or 2N5484 Newark Electronics
 Q2 2N3904
 Q3 2N3866 or 2SC799 or 2N3553 Mouser
 U1 NE602AN HSC Electronics 1-800-442-5833
 U2 LM380-N Digikey
 U3 78L05 333-78L05AP Mouser
 XTAL 7.040 available from HSC for \$2.95 each.

There you have it. Now for those of you who missed the first posting of the 49er, it is a simple 40 meter transceiver with QSK, VXO that covers 5 kHz, DC receiver, and fits inside an Altoids or Sucrets box. It runs on 9 or 12 volts, your choice. Boards are available from NorCal, Jim Cates, 3241 Eastwood Rd., Sacramento, CA 95821. Cost is \$5.00 postpaid. Clubs and groups can buy 10 or more boards for \$4 each. The entire article is being published in both the March issue of QRPP and the April issue of QRP Quarterly. If you positively can't wait, send a business sized S.A.S.E to me and \$1 and I will send you a copy of the article. The 49er circuit was designed by Wayne Burdick, N6KR and the circuit board layout was done by me, KI6DS. Far Circuits did the boards, and they are single sided, not plated through, not solder masked, and do have a silkscreen of the parts layout. The rig works really well, the first signal that I copied was K5F0 in Dallas running .95 Watts!! Hope this helps. 72, Doug

From qrp-1@lehigh.edu Sun Feb 11 22:22:48 1996
 From: dh%reddog.csustan.edu@altair.csustan.edu (Doug Hendricks)
 Subject: [4115] 49er Parts List Addendum
 Message-ID: <96021110827.AA24067@reddog.csustan.edu>

Guys, if you send Jim a check or money order, PLEASE make it out to Jim Cates and NOT NorCal. 72, Doug

From qrp-1@lehigh.edu Sun Feb 11 22:22:48 1996
 From: Joe Marraah <jmarraah@grfn.org>
 Subject: [4133] 49er schematic?
 Message-ID: <Pine.SOL.3.91.960211151200.24845B-100000@freenet>

Is there a schematic for the 49er available yet?

73,
Joe KB8LFQ

From qrp-1@lehigh.edu Sun Feb 11 22:22:48 1996
From: flanders@GroupZ.net (Jerry Flanders)
Subject: [4108] Advice on QRP rig.
Message-ID: <199602110517.AAA64865@nss2.CC.Lehigh.EDU>

Well, I checked the calendar and discovered it is time I got back into QRP. I was on in the fifties with 5 watts (single-tube 6V6), then again in the 70's (HW-7). another 20 years has gone by, so it is time to do it again.

I could just crank down the power on the ICOM 751, but I would like to go one step beyond that. I have a solar panel that is good for 0.9 amps, so I can keep a garden-tractor battery charged enough to operate a low-drain rig or some sort, but not the 751. Should be a fun project to do (maybe) WAS on solar power.

I still have the HW-7, but this time I think I want a better rig than that. It's direct-conversion receiver left a lot to be desired The only interest for QRP is CW. I am not familiar with most of the rigs I hear referred to on this reflector, and I need some advice from you guys on a rig.

I want all possible HF bands. I see the Heath HW-9 covers everything 80 to 10 (with the WARC kit). Also looks like it is a superhet design, and includes a crystal filter. Specs look pretty good. Is this a reasonably good rig? What is the receive current draw (Heath didn't quote a figure in the old catalogs I have)? What are typical selling prices for it?

Any/all comments appreciated.

0.73's

Jerry W4UKU flanders@groupz.net

From qrp-1@lehigh.edu Sun Feb 11 22:22:48 1996
From: richards@nylink.org
Subject: [4139] Beacon Report
Message-ID: <9602112133.AA07497@genesis.nylink.org>

Hi All,

I heard all levels of the WA3NNA Beacon today. It ranged from a 599 at 2w to a 229 at 200uw at 1746 UTC. The rig used was a NorCal Sierra with a Hustler 5BTV ground mounted vertical. Later in the afternoon I was able to copy down to the 20mw level with the HW-8 and a Delta Loop, propagation had changed by then. If my slide rule is correct, that's about 1.625 million miles per watt at the 200uw level (325 miles or so between stations).

Surprisingly not much QRM on the frequency either. There were a few QRO Klingons and one QRP Ferengi operating from the Bethesda sector. But it was his first QRP QSO, so we can't complain too much. He had a nice signal too.

Thanks for the beacon Pete, it was a fun afternoon.

72 de Rick WZ2T NNY
QRP-L, ARRL, QRP-ARCI, NorCal, NE-QRP, CQC

richards@nylink.org

From qrp-l@lehigh.edu Sun Feb 11 22:22:48 1996
From: GREGOIRE@ENDOR.COM (ERNEST GREGOIRE)
Subject: [4125] BEACON\QRP+\ARGO 556
Message-ID: <199602111723.MAA94332@nss2.CC.Lehigh.EDU>

Hello Gang,

Many thanks to Pete Rossi,WA3NNA, for the beacon this week end.

It's a great opportunity to test rigs side by side. I did this with the Argo 556,(TenTec),and the Index Labs's QRP+,original but modified version.

The beacon was copied at 2 watts, 200 mw, and 20 mw, on the QRP. I could hear it at the 200 Umw but could not copy the code word.

The Argo did poorly. It could not separate the QRM-QRN,from the lower powered signals. The 2 watt one was copied on both rigs. If the Argo had a SCAF it might have had a chance, so I cant condemn the Argo completely here for sensitivity, whereas my ears were the measuring device.

I did use the Argo and the QRP+ in the N.E. QSO party last weekend and got critical reports from various parts of the U.S. They all agreed that the quality of the SSB signal was superior on the ARG0. I found that true on the receiving end here too.

So the search goes on, for a right that has the best of both radios.
If it is found it is sure to be a gazillion seller.

de AA1IK N.E.-QRP-C. # 202 (Lead by example, It is better to)
 QRP-L member #95. (pull a string than it is to push it.)

Ernie Gregoire
RR 1 Box 221
Canaan, NH. 03741

New England QRP Club, information
available on request by sending me a
S.A.S.E. or via E-mail.

e-mail : GREGOIRE@ENDOR.COM
packet : AA1IK@WA1WOK.FN43FE.NH.USA

From qrp-1@lehigh.edu Sun Feb 11 22:22:48 1996
From: WJ4PRandy@aol.com
Subject: [4149] Capacity Paddles
Message-ID: <960211225457_319407395@mail02.mail.aol.com>

Hi Gang,

Just a thought about paddles that operate off of capacity (touch).

I use and love my Heath uMatic keyer but the best thing I ever did
was epoxy the paddles and the paddle storage drawer into the bottom
of the case of the keyer. They were the only black mark I ever had
against the keyer. The reason I hated the paddles so much was that
they wouldnt keep a consistant "feel" (or touch pressure) throughout
a qso unless I had a wet sponge next to it on the desk top to moisten
my fingers occasionally. There have been some threads lately about
someone building a capacity touch paddle/keyer and I just wanted
to get my 2 cents in. Not saying it cant be done... just observing one
that wasnt so hot...

72, Randy WJ4P

From qrp-1@lehigh.edu Sun Feb 11 22:22:48 1996

From: dh%reddog.csustan.edu@altair.csustan.edu (Doug Hendricks)
Subject: [4117] Crystal Socket Sub
Message-ID: <9602110828.AA24070@reddog.csustan.edu>

Denis Englander came up with positively a great idea at the Feb. meeting of the NorCal QRP Club. He had made a dual band Pixie, (no that is not the great idea) in an Altoids box. The great idea that he came up with is so simple and so obvious, I don't know why I didn't think of it long ago. He used an IC socket, or part of one, for a crystal socket. How? Use one of the machined sockets, and cut it in half. Now, trim it until there are 3 pins left. Use this as the crystal socket! The pin spacing is .1" and the crystal (in HC49 holder) has pins with .2" spacing. So all that you have to do is clip the middle pin of the 3, and voila, an instant crystal socket.

Those of you who have been playing with the Pixie and the will play with the 49er take note. Now you don't have to solder that \$3 crystal in the rig! Use the same rock in several rigs. Thanks Denis for teaching me a neat new trick. 72, Doug, KI6DS

Permission is granted for anyone to reprint this in any club or non-profit publication. Please give Denis, KD6ETI, the credit for a great idea.

From qrp-1@lehigh.edu Sun Feb 11 22:22:48 1996
From: dx@sun.tir.com (Tim, WB80GM)
Subject: [4120] FS: Gel Cells and nicad batteries UPDATE
Message-ID: <311e2965.1333249@news.tir.com>

This will be my last message to the QRP list about these batteries as I don't want to keep cluttering your folk's mailing list with my sales ad's. If you would like to check for what types of batteries I have available in the future please check the Usenet newgroup, rec.radio.swap.

PLEASE NOTE the addition of the 6 volt nicads

12 volt gel cell batteries that have been removed from burglar alarm systems and replaced with new ones. These batteries are like new and have all been checked under a 2 amp load for 2 minutes.

I currently have on hand:

5 ---	12 volt 7ah gel cells	\$12ea	6" x 2.5" x 3.75"
2 ---	12 volt 6ah gel cells	\$10ea	6" x 2.5" x 3.75"
1 ---	12 volt 4ah gel cell	\$7ea	4" x 2.5" x 3.75"
1 ---	12 volt 4ah gel cell	\$7ea	6" x 2.5" x 3.75"
1 ---	12 volt 2.3ah gel cell	\$6ea	

1 --- 12 volt 2.5ah nicad pack \$6ea (Gates)

1 --- 6 volt 2.5ah nicad pack \$5ea (Gates)

16 --- 6 volt 500ma nicad pack \$3ea (minimum order of 2)

The 6v 500ma packs are configured in a stacked configuration pack, NOT flat. They have spade terminals on each end of the pack.

All are guaranteed to be good and up to full charge on delivery.

All prices DO NOT include shipping charges.

When responding, include your zip code and I can tell you what shipping charges will be.

Email me if interested.

Thanks and 73...

From qrp-1@lehigh.edu Sun Feb 11 22:22:48 1996

From: "William C. Robbins" <billrobb@serv01.net-link.net>

Subject: [4124] HW-8 For Sale

Message-ID: <199602111651.LAA03372@serv01.net-link.net>

I recently received the HW-8 in a trade deal. It includes the Power Supply and original manual. It is not painted the original Heath green. It is a brighter green krinkle paint. It has been modified with, what appears to be documentation in the manual. I have had it on 40 cw and it works fine.

I will ship it for \$110.

Bill WA8CDU

William C. Robbins, WA8CDU

Heathkit Collector

billrobb@serv01.net-link.net

From qrp-1@lehigh.edu Sun Feb 11 22:22:48 1996

From: JKXM17A@prodigy.com (ALLEN SMITH)

Subject: [4110] HW-8 Parts Needed.

Message-ID: <097.00865826.JKXM17A@prodigy.com>

I recently purchased from one of our list members an HW-8 that had been a spare parts rig. In addition to electronic trouble shooting, it needs the upper and lower cabinet shells, part numbers 90-566-2.

I am told that perhaps the cabinet halves from the HW-7 are the same size and can be substituted.

So, however unlikely it is, I thought I would ask and see if any one of you out there on the list has these spare cabinet halves to sell.

Pete Rossi: I can hear your beacon on the hour and half hour at high power, just barely, sometimes. Always fall prey to a tune up carrier or a succession of static crashes or something but it's kinda there, down in the noise.

Thanks and 73/Allen - AA0YU
Grand Jct, CO.

From qrp-1@lehigh.edu Sun Feb 11 22:22:48 1996
From: Dick G0BPS <Dick@kanga.demon.co.uk>
Subject: [4138] Mike Bryce: please talk to me
Message-ID: <yz0MkIAz5BHxEwws@kanga.demon.co.uk>

After about 10 attempts, by mail and on here I resort to this.

MIKE BRYCE..... PLEASE TALK TO ME!

Did you receive the DX memberships of the ARCI of the past year or so and can I do it by Email.

PLEASE REPLY.

Even a tap, tap on the window will do

TTFN de Dick

Dick Pascoe G0BPS / G0ROO KANGA PRODUCTS
The UK's Leading supplier of QRP kits.
Email to: Dick@kanga.demon.co.uk

All comments made here are permitted
and condoned by the boss
I AM THE BOSS!

From qrp-1@lehigh.edu Sun Feb 11 22:22:48 1996
From: Dick G0BPS <Dick@kanga.demon.co.uk>
Subject: [4137] Mike Bryce; Please talk to me
Message-ID: <IwQykNAjCCHxEwmV@kanga.demon.co.uk>

Sorry for the bandwidth gang but....

I handle all the DX membership of the ARCI and have done so for the past five years. I have several times asked Mike to let me know if he has received the memberships. Since he took over I have heard nothing.

OK, I know he is busy, we all are, but I Found Mike was on Email and asked, early last spring both by letter and Email, if I can do it by Email to save me the cost of postage. I am still waiting for an answer after all this time.

Mike Bryce ... PLEASE talk to me !!!

TTFN de Dick

Dick Pascoe G0BPS / G0ROO KANGA PRODUCTS
The UK's Leading supplier of QRP kits.
Email to: Dick@kanga.demon.co.uk

All comments made here are permitted
and condoned by the boss
I AM THE BOSS!

From qrp-1@lehigh.edu Sun Feb 11 22:22:48 1996
From: N5EM@aol.com
Subject: [4121] Nightmares/Visions
Message-ID: <960211104251_141273656@emout07.mail.aol.com>

OK, gang. This stuff must be getting serious.

Dreamed (or was it a vision, Wayne?) that one of the NorCal guys introduced their new project at Dayton. Stood there, describing their 40 meter, 50 milliwatt, sideband rig for the backpacking contingent. The rig mounts into the case of a handheld mic (batteries and all) and uses the dangling cord as a loaded 40 meter antenna. Honest, guys. Had to write it down as soon as I woke up!

I think I need professional help (but not until AFTER Dayton).

72

Ed

From qrp-1@lehigh.edu Sun Feb 11 22:22:48 1996
From: Byron8LCZ@aol.com
Subject: [4147] NorthWest QRP Sprint
Message-ID: <960211225241_141755438@mail06.mail.aol.com>

Hi gang,

Its over, another contest bites the dust. Propagation could have been better but it wasnt. In the end, I managed:

band	QSO's	S/P/C's
20m	18	9
40m	3	3

So far, I havent had the courage to add up the score.
The contacts were mostly west coast from Mich, no DX, only worked two guys running 1 watt or less, N2NMM and KA3WTF. 40 meters was terrible, QRN, QRM, Amtor'ites and generally few QRP signals heard. We must be at the bottom of the bottom of the solar cycle. The surprising thing was WWV was coming in here on 15 mhz at 30 db over S-9. I listened on 15m many times, one guy called me, as soon as he found out it was a contest, he said, 73 cul om. Didnt even bother with 80m, its usually S-9 noise.

Yesterday, conditions were much better when i worked France, Belize, Finland, St Lucia, South Orkney Island, VE6, VE7 and some west coasters. Today I worked one guy on 17m, before the contest, he was on the ice on Lake St Clair, playing with his QRP rig, WB8E of course. And he was only 519 from 10 miles away.

How did the rest of you do ?

72, Byron WA8LCZ Detroit

From qrp-1@lehigh.edu Sun Feb 11 22:22:48 1996
From: Russ1031@aol.com
Subject: [4145] NW QRP Contest Report from Floodsville

Message-ID: <960211215511_319349046@mail04.mail.aol.com>

This has been an exciting week in Oregon. We live on the McKenzie River, which has not been an ideal location. However, our house was spared, even though neighbors were resorting to boats and helicopters to get to higher ground.

So what does a mature, value-based person do in times of calamity? He operates a ham radio contest.

And a pretty good contest it was. Even though 40 meters was zilch, and 15 meters never opened, 20 provided enough entertainment. I ended up with 61 Qs, in 27 sections. The propagation on 20 zoomed up, and zoomed down. At times, I was the object of mini pileups. At other times, nada.

In any event, it was a lot more civilized than Sweepstakes and at least three times more fun. It was a pleasure to encounter so many familiar callsigns from the QRP community.

Russ, AA7QU

From qrp-1@lehigh.edu Sun Feb 11 22:22:48 1996
From: Byron8LCZ@aol.com
Subject: [4132] NW QRP CONTEST TODAY !
Message-ID: <960211151711_419964455@emout05.mail.aol.com>

Hey gang,

While you're operating in the NorthWest QRP contest today, from 1800z to 2300z, I hope you remember to check 15m at the top of every hour. It could open, sure it could.

After two hours, I have 11 contacts, all to the west of Mich, i.e. Ca Or Wa Co Tx Nm, all on 20m. But we need more activity

72, Byron WA8LCZ

From qrp-1@lehigh.edu Sun Feb 11 22:22:48 1996
From: ae4ic@nr.infi.net (BOB KELLOGG)
Subject: [4129] NW80/20-Part I

Message-ID: <199602111914.0AA20704@mh004.infi.net>

Gang,

This is going to be the saga of building a kit and troubleshooting it from beginning to end - in several parts. I'm going to describe the assembly, what I think about it, and the results.

I'm not an electronics expert, so I will make some mistakes, hopefully find and fix them, and go on.

Newbies may find themselves in some of my musings, and old timers may laugh at my stupidity and ignorance. Whatever, I don't care. All of the Parts of this epic will have a subject as above, so if you're not interested, move on.

The kit chosen is the 40 meter version of the NW80/20 designed by Roy Gregson. This is appeared to me to be a good circuit design, with 4-7 watts out and speaker capability. It uses several ICs as well as discrete components, taking advantage of their flexibility. It has a variable bandwidth filter. The instructions use a test-as-you-build technique.

Opening the box, I found parts for each section of the xcvr were packaged in separate packs. The board, 5" X 5" was single sided, screen printed and solder masked, looked good, although some of the lands are pretty tight together. All parts are included in the kit, except the case and jacks. These are available at Radio Shack, and enable the builder to pick the jacks that match his current configuration. The board fits snugly in one of the nicer Radio Shack cases.

I decided not to bother with a parts inventory. It looked like most everything was there, at least there were enough bags of parts. LETS GET THIS THING BUILT!!

WIND THE TOROIDS: There are only four to wind, so no problem.

INSTALL THE VFO: Ok, just 10 parts to instal. I was short a 33pf capacitor, but I had one in the spare box, so no problem. We're ready to check the VFO. This can be done with a receiver, but builder extrordinair that I am, I have a frequency counter I'm dying to use. Strange, the manual says frequency range should be 4.8-5.0 MHz, and mine is about 9.3-11.0. Hmmm. That's double what it should be. I'll bet there's a strong second harmonic that my sensitive counter is picking up. (WRONG, WRONG, WRONG) Well, if that's not right, I'll fix it later. LET'S GET THIS THING BUILT!

KEYING CIRCUIT: Another 10 parts and the keying circuit is built. Let's see if it works. YEP! Is this fun or what?!!

RIT CIRCUIT: 11 more parts, and the RIT is complete. Does it work? Bingo! We're on a roll!!!!

AUDIO AMPLIFIER: Only seven parts later we're ready to check for sound! I didn't want to take time to dust off my old home brew signal generator, so I used the alternate finger to the pot method, and There IS hum!!

RECEIVER: Now it takes about 35 parts to finish the receiver, and we're ready to test. Caution! We check the power line to see if it might be shorted with a solder bridge, or some other serious problem. The BEEP! says shorted.

How can this possibly be? From a super solderer like me?? Actually, I have a great soldering iron for boards, and don't remember the last time I got a solder bridge. But, somethings wrong, so I check, and check, and CHECK. Nothing. Well, then, lets measure the resistance across the power input. Maybe it's not a dead short. Resistance measures 132 ohms. Oh, lets see, at 12-13 volts, that would drain about 100 ma. Manual says 62 ma is reasonable. Hmmm. Somethings not right, but, lets apply the smoke test. Look out baby, here comes 12 volts!

No smoke. Connect a temporary antenna and tune. SIGNALS!! Peak some of the transformers and the signals get loud! -- real LOUD! Oh boy, are we havin' fun or what????!! -- but the signals aren't code, and they aren't S.S.B. (?) They aren't familiar at all. Oh, oh, there's one that sounds like German AM. We're not in the 40 meter band. :-(.

Well, I guess that second harmonic theory about the VFO wasn't right. What would make the VFO range too high? The inductance was wound to specs, so the only thing left is the capacitance. It must be the LC circuit that's bad, so check the capacitors in parallel with the main tuning capacitor. C41 is supposed to be 330pf. Magnifying glass reads 330 on it -- wait a minute -- this is Japanese notation. That means 33 with no following zeros. 33pf!! That's what happened to the 33pf I was missing. Replace the 33pf with one marked 331 and check the VFO. Voila! Tuning range 4.8-5.0 Mhz on spec.

Now check signals again. Good loud CW coming from the speaker. Sounds like 40 meters to me. All right!! LETS GET THIS THING BUILT!

-- TO BE CONTINUED --

73,

Bob Kellogg, AE4IC
Prolably, but not nececelery. - Benny Hill

From qrp-1@lehigh.edu Sun Feb 11 22:22:48 1996
From: QRPBOOK@aol.com
Subject: [4142] QRP Data Book
Message-ID: <960211185723_141573626@mail04.mail.aol.com>

Many have been asking about the book to be published containing the articles by Paul Harden, NA5N, in the Colorado QRP Club newsletter, The Low Down.

I am pleased to announce the book, Electronic Data Book for Homebrewers(c) including QRP Yellow Pages(c) will be released May 17 at Dayton.

Electronic Data Book for Homebrewers(c) and QRP Yellow Pages(c) is based on the series by NA5N and features several of the popular QRP rigs. Lab measurements and spectrum analyzer waveforms are shown for these rigs.

This is the most complete and comprehensive book of its kind with over 100 pages of data sheets and information for the amateur radio QRPer, electronic hobbyist and technician. It is spiral bound for ease of use on the bench in the shack or in the lab.

The QRP Yellow Pages by Rich High, W0HEP, will provide a quick reference to manufacturers and suppliers of interest to QRPers and other amateurs.

This book is a "must have" for the homebrewer. The cost is \$15.00 U.S. (\$17.50 postpaid U.S./\$19.50 U.S. postpaid foreign) from 5 Watt Press, 740 Galena Street, Aurora, CO 80010-3922.

The release date is May 17. No orders will be shipped prior to May 16. Look for us in Dayton.

5 Watt Press
E-mail: QRPBOOK@aol.com

From qrp-1@lehigh.edu Sun Feb 11 22:22:48 1996
From: paul1@wizard.ucs.sfu.ca (Paul Erickson)
Subject: [4144] R7 tuning help needed.
Message-ID: <9602120232.AA15243@wizard.ucs.sfu.ca>

I have borrowed an r7 from a friend for comparison purposes, and want to have it as backup for the coming contest. The problem is that the swr is

fine for all bands except 20mtrs, where it appear electrically short in that minimum swr occurs in the phone band. I don't have the manual to refer to and don't want to mess things up for my friend. Looking at it, if I lengthen the 20 meter section, I am assuming I will have to shorten the 30 and 40 meter sections to compensate.

Anyone have any comments?

cheers, Paul
VE7CQK
email: paul1@wizard.ucs.sfu.ca

From qrp-1@lehigh.edu Sun Feb 11 22:22:48 1996
From: N5EM@aol.com
Subject: [4122] RS12 Change!!!
Message-ID: <960211105629_318821826@emout10.mail.aol.com>

In a message dated 96-02-10 22:48:25 EST, you write:

>SB SAT @ AMSAT \$ANS-042.02
>SATELLITE STATUS
>
>HR AMSAT NEWS SERVICE BULLETIN 042-02 FROM AMSAT HQ
>SILVER SPRING, MD February 11, 1996
>TO ALL RADIO AMATEURS BT
>BID: \$ANS-042.02
>
>According to a number of recent reports, RS-12 is currently operating mode
KT
>(15m up, and both 10m/2m down).
>
>Great signals on the 2m downlink are
>reported. 10w to a tribander on the
>uplink are said to produced solid S-9 copy on the 2m downlink even when the
>satellite is overhead.
>
>Passbands are: 21.210-21.250 up, 29.410-29.450 and 145.910-14.950 down
>Beacons are at 29.412, 145.912, 29.450, 145.950.
>
>ANS thanks John Boudreau, VE8EV for this information. He can be reached via
>E-Mail at: ve8ev@amsat.org through Packet: VE8EV@KL7AA.#NAK.AK.USA.NOAM.
>
>
>

First time in years, folks. Check it out. If you have a 2m multimode in addition to your regular QRP 15/10 station, try listening to both downlinks at the same time. Often, one is better than the other.

72
Ed

From qrp-1@lehigh.edu Sun Feb 11 22:22:48 1996
From: litigate@mi.net (litigate)
Subject: [4130] WTB: Argonaut 509 Front Panel
Message-ID: <199602111951.PAA23433@itchy.mi.net>

Anyone have a mint front panel for the 509 squirrelled away and want to sell it?
de Rick VE9HF.

* Rick Williams VE9HF *
* 472 Broad St. *
* Fredericton, NB *
* E3A 5L1 CANADA *

From qrp-1@lehigh.edu Sun Feb 11 22:22:48 1996
From: Wayne Barnhart <wayneb@on-ramp.ior.com>
Subject: [4116] xtals
Message-ID: <Pine.LNX.3.91.960211002413.3714A-1000000@on-ramp.ior.com>

I have access to some xtals for 7104. I know nothing about them as to type and so fourth as I havn't rcvd them yet. I also have access to someone who grinds stones for a hobby, he also facets.
My question is will grinding down the xtals lower the frequency or raise it? Also, with xtals in the x, y and z plane, if you could lower the frequency by grinding would you do it on the face or on the ends?
I plead total ignorance when it comes to these things.

Wayne WB7WHI
Spokane, Wa.
wayneb@on-ramp.ior.com

From qrp-1@lehigh.edu Sun Feb 11 22:22:48 1996

From: BRUCE3900@delphi.com
Subject: [4141] YAGB
Message-ID: <01I13I27IC409EF7SM@delphi.com>

YAGB YAGB YAGB YAGB YAGB YAGB YAGB YAGB YAGB YAGB YAGB YAGB
YET ANOTHER GROUP BUY!

Having watched the QRP+ group buys, the OHR group buys, and the Wilderness Radio Group buy, I thought it was time my good friend Bruce Williams, at MXM Industries got in on the fun, so I called him last night and said "you wanna sell some radios?" Thus YAGB was born -- Yet Another Group Buy!

MXM Industries manufactures one of the most advanced QRP transceiver kits available today. Notwithstanding the claims of the other guys, just ask -- is their receiver a DOUBLE CONVERSION receiver? Is their crystal filter a four pole design (yes, there are some of those out there). And, can they copy a signal of 0.01 microvolts?

The sensitivity figures have been duplicated by a couple of labs with no investment in MXM! For an objective opinion on MXM receivers, ask our own Chuck Adams, K5FO (sorry Chuck, I had to do it!).

Anyhow, here's the deal -- if we put together a total of 10 orders MXM will give 15 percent off their already remarkably low prices. The products available on this offer are:

The MXM TRX-XX transceiver -- double conversion receiver, 3 watts out, includes case and tuning capacitor. Available on 40, 30, and 20 meters. Regularly \$129.95 -- YAGB price \$110.45.

The MXM RX-TX receiver/transmitter -- single conversion receiver, crystal controlled 3 watt output transmitter, includes case and tuning capacitor. Available on 80, 40, 30, and 20. Regularly \$79.95 -- YAGB price \$65.45.

The MXM RX receiver -- single conversion receiver using a ceramic filter. Will hear better than 0.1 microvolt! Available on 80 through 20 meters. Regularly \$49.95 -- YAGB price \$42.45.

Here's how YAGB will work. If you want to be part of this history making adventure AND also want to own the best QRP rig, send me your name via this list (just to me, don't include the list) at bruce3900@delphi.com

All YAGB prices are exclusive of shipping. Bruce uses Priority mail, so ask about the cost when you call with your order.

When we have 10 people on the list I will pass your names to MXM and you

can contact them directly to place the order.

If you want additional information on MXM equipment, write them at:

MXM Industries
Box 1, Route 156c
Smithville, TX 78957

or call them at (512) 237-3906. Tell him W6TOY sent you!

The usual disclaimers apply. I don't work for MXM. I don't have a financial stake in MXM. Bruce Williams, WA6IVC, is probably my best friend on the planet. I worked for him for many years in the Aerospace industry. I do use MXM radios. I also use S&S, NE-QRP, Ten-Tec, Icom, Yaesu, and Kenwood, plus some I've forgotten to mention, like Heathkit! 73,

Bruce -- W6TOY/3
QRP, Really! (c)

YAGB YAGB YAGB YAGB YAGB YAGB YAGB YAGB YAGB YAGB YAGB YAGB

From qrp-1@lehigh.edu Sun Feb 11 22:22:48 1996
From: bhopkins@polarnet.com (Bruce Hopkins)
Subject: [4128] Re: 49er Case - What size is a Altroids
Message-ID: <v01530501ad43d6b9e409@[204.119.24.161]>

>I am not sure if I am lucky or unlucky since I have never had the
>experience to learn what Altroids are, do, ? Sounds like something I
>would not want to know. However, since a 49er will fit in one of there
>boxes I now feel I must learn just what these are.... Or at least I
>must know what size box they come in... Then we will also required a
>source for such empty boxes. :-)
>
>de stan ak0b

For Stan & others unfamiliar with ALTROIDS(sic)...

ALTROIDS: From Callard & Browser
"The Original Celebrated
Curiously Strong
Peppermints"

Made In Great Britain
Net WT 1.75 OZ (49.6g)

SIZE: Internal Approximately
3+9/16" long

2+3/16" wide
3/4" deep

You will find "ALTOIDS" in the Yuppie candy section of your favorite super market or drug emporium... We even have them here in Alaska so distribution must be far and wide... I have purchased them in Florida so that about covers the US...

For those familiar with the "SUCRETS" box, the ALTOIDS is about the same width but slightly deeper and somewhat wider... SUCRETS: 3+1/16" long, 2+5/16" wide, 11/16" deep...

If you can't find them I would be happy to ship one to you for cost...It would include the peppermints or course... Have fun Gang, I am sending for my board tomorrow, amassing the parts this week, and furiously eating ALTOIDS even as we speak...

72/73/00's - Bruce * KL7JAF
QRP-L #380 ISSB #14548
McPig #003 TFO - 359
E-Mail: bhopkins@polarnet.com
BBS: KL7JAF@KL7GNG.#NAK.AK.USA.NOAM
Snail Mail: B. Hopkins / P.O. Box 10079 / Fairbanks, AK. / 99710

From qrp-l@lehigh.edu Sun Feb 11 22:22:48 1996
From: "Robert J. Gobrick" <rgobrick@nfld.com>
Subject: [4134] Re: 49er Case - What size is a Altroids
Message-ID: <2.2.32.19960210202454.0070af44@public.compusult.nf.ca>

Bruce and QRP-L Gang,

As one "last" follow-up to the Altoids vs. Sucrets breath sweetener dilemma

- I believe (and maybe someone can do a little research on this) that Sucrets is NO more in a metal box - I think it is plastic container now. Where the "new kid on the block" Altoids (at least from this side of the Atlantic) comes in an "RF Friendly" tin box.

The Sucrets box may be a collectors and if so I will personally bring my Pixie that I built last year at Dayton (and won some kind of prize with the help of Jim W1FMR and Paulette W9OHU for not burning myself with a soldering iron after too too many soda pops) and is mounted in an original Sucrets tin that I was saving for the occasion. If you want I will give autographs and will let you hold it for picture taking purposes (only if credit is given to the builder) - this could be as BIG an event as "Four Days in May (c)" QRP Symposium to be held on Thursday May 17, 1996 (you didn't think I'd let the opportunity go by did you?)

And finally go out and buy your spouse some of those Altoids as a gift - also buy him/her a nice crystal candy dish - Why you ask - must I explain... Your 49er in a Altoids tin can be a prize winner at the annual QRP Dayton Hamfest Norcal "build-em-up" shootout and yes it may even become a collectors item someday like my Pixie in a Sucrets tin.

Cheers (that's what they say when the powerful peppermint Altoids puckers up your mouth)

Bob V01DRB/WA6ERB

At 14:03 2/11/96 EST, you wrote:

>>I am not sure if I am lucky or unlucky since I have never had the
>>experience to learn what Altroids are, do, ? Sounds like something I
>>would not want to know. However, since a 49er will fit in one of there
>>boxes I now feel I must learn just what these are.... Or at least I
>>must know what size box they come in... Then we will also required a
>>source for such empty boxes. :-)

>>

>>de stan ak0b

>

>For Stan & others unfamiliar with ALTROIDS(sic)...

>

>ALTROIDS: From Callard & Browser

> "The Original Celebrated

> Curiously Strong

> Peppermints"

>

> Made In Great Britain

> Net WT 1.75 OZ (49.6g)

>

>SIZE: Internal Approximately

>
> 3+9/16" long
> 2+3/16" wide
> 3/4" deep
>
>
> You will find "ALTOIDS" in the Yuppie candy section of your favorite
>super market or drug emporium... We even have them here in Alaska so
>distribution must be far and wide... I have purchased them in Florida so
>that about covers the US...
>
> For those familiar with the "SUCRETS" box, the ALTOIDS is about the
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>2+5/16" wide, 11/16" deep...
>
> If you can't find them I would be happy to ship one to you for
>cost...It would include the peppermints or course... Have fun Gang, I am
>sending for my board tomorrow, amassing the parts this week, and furiously
>eating ALTOIDS even as we speak...
>
>72/73/00's - Bruce * KL7JAF

Bob Gobrick - VO1DRB/WA6ERB/VE2DRB - Newfoundland, Canada
QRPer Galore - ARCI, GQRP, NORCAL, NEQRP, COQRP, MIQRP, NWQRP
Internet: rgobrick@nfld.com
bgobrick@nlnet.nf.ca
Compuserve: 70466.1405@compuserve.com

From qrp-1@lehigh.edu Sun Feb 11 22:22:48 1996
From: rsm@halcyon.com (Robert Marlan)
Subject: [4135] Re: 49er Case - What size is a Altroids
Message-ID: <v02130501ad43f5f2632f@[198.133.235.18]>

>I am not sure if I am lucky or unlucky since I have never had the
>experience to learn what Altroids are, do, ? Sounds like something I
>would not want to know. However, since a 49er will fit in one of there
>boxes I now feel I must learn just what these are.... Or at least I
>must know what size box they come in...

They are mints sold in the Northwest in a small metal box
about (guessing..) 4 x 3 x 3/4 inches.

If you need a box I can send one (with or without the mints ;))

Bob Marlan
KA6NOC/7
rsm@halcyon.com

From qrp-1@lehigh.edu Sun Feb 11 22:22:48 1996
From: Buck Switzer <n8cqa@sun.tir.com>
Subject: [4136] Re: 49er Case - What size is a Altroids
Message-ID: <9602112038.AA03237@sun>

At 12:52 PM 2/11/96 EST, you wrote:

>I am not sure if I am lucky or unlucky since I have never had the
>experience to learn what Altroids are, do, ? Sounds like something I
>would not want to know. However, since a 49er will fit in one of there
>boxes I now feel I must learn just what these are.... Or at least I
>must know what size box they come in... Then we will also required a
>source for such empty boxes. :-)

>

>de stan ak0b

>

Stan - I'm looking at an Altroids (peppermint breath mints made in England)
box right now. 3.25" x 2 3/8" x 13/16", has a lid thats hinged at the back
edge. My wife says the mints are very good. Apperantly available throughout
the country .

72/73 Buck
Buck Switzer, N8CQA, 654 Georgia, Marysville, MI 48040-1243
Home: (810) 364-9640 - Fax: (810)364-8179 - Work (810)949-0151
n8cqa@tir.com - am441@detroit.freenet.org

From qrp-1@lehigh.edu Sun Feb 11 22:22:48 1996
From: "Robert J. Gobrick" <rgobrick@nfld.com>
Subject: [4119] Re: 49er Parts
Message-ID: <2.2.32.19960210133742.00725774@public.compusult.nf.ca>

Bob,

If Jim doesn't have any more of the NORCAL 7.040 xtals than Bill at Kanga
USA may have some - check the Kanga USA WWW Homepage.

73/72 Bob V01DRB/WA6ERB

At 00:33 2/11/96 EST, you wrote:

>It sounds like all the "difficult parts" are already listed--EXCEPT ONE
>
>The Crystal!! I seem to remember that Doug H. had a bunch on 7.040 for sale a
>while back, but they may be all gone.
>
>So...Any bright ideas out there for a source that doesn't involve custom
>grinding, or other such big \$\$\$ outlay?
>
>73, Bob

```
-----
| Bob Gobrick - V01DRB/WA6ERB/VE2DRB - Newfoundland, Canada |
| QRP'er Galore - ARCI, GQRP, NORCAL, NEQRP, COQRP, MIQRP, NWQRP |
| Internet:      rgobrick@nfld.com |
|                bgobrick@nlnet.nf.ca |
| Compuserve:   70466.1405@compuserve.com |
|-----
```

From qrp-1@lehigh.edu Sun Feb 11 22:22:48 1996
From: W3HMS@aol.com
Subject: [4112] Re: Audio Amp
Message-ID: <960211004211_419669889@emout09.mail.aol.com>

Someone on this list said in early January that RS was closing out for
\$5.....and I got one.

Suggest try RS now!!!

John

From qrp-1@lehigh.edu Sun Feb 11 22:22:48 1996
From: Stan Skelton <sskelton@cln.etc.bc.ca>
Subject: [4113] Re: Audio Amp
Message-ID: <Pine.3.89.9602102202.E762-0100000@sparky>

The new number for the RS audio amp (called "Power Amplifier") is 28-4031
that's the US number.
73's VE7SKT (qrp-1 # 34)

On Sun, 11 Feb 1996 W3HMS@aol.com wrote:

> Someone on this list said in early January that RS was closing out for
> \$5.....and I got one.
>
> Suggest try RS now!!!
>
> John
>
>

From qrp-1@lehigh.edu Sun Feb 11 22:22:48 1996
From: rxd7@po.cwru.edu (Richard A. Dell)
Subject: [4118] Re Audio Amp
Message-ID: <v01530501ad439af60e0f@[129.22.123.96]>

I would like to thank all of the group for their response to my quest for an alternate source for a small amp kit.

There was offers of personel stock from two of the members, and I did purchase two of the amp kits.

Thanks to all of you. Your a great group !

72/73, Dick Dell, wd8isb

Richard A. Dell
Manager of Chemical Safety
Case Western Reserve University

AMATEUR STATION
QRP-L 310
PHOTOGRAPHIC SOC. AMER.
NRA
ARRL-VE
American Modelers

Assoc

From qrp-1@lehigh.edu Sun Feb 11 22:22:48 1996
From: Byron8LCZ@aol.com
Subject: [4131] Re: Nightmares/Visions
Message-ID: <960211151707_419964418@mail02.mail.aol.com>

In a message dated 96-02-11 10:45:06 EST, you write:

>Dreameed (or was it a vision, Wayne?) that one of the NorCal guys introduced
>their new project at Dayton. Stood there, describing their 40 meter, 50

>milliwatt, sideband rig for the backpacking contingent. The rig mounts into
>the case of a handheld mic (batteries and all) and uses the dangling cord as
>a loaded 40 meter antenna. Honest, guys. Had to write it down as soon as I
>woke up!

>

>I think I need professional help (but not until AFTER Dayton).

>

>72

>Ed

If you need professional help Ed, theres another 900 of us that do too, maybe
we can get a group rate ????

72, Byron WA8LCZ

From qrp-1@lehigh.edu Sun Feb 11 22:22:48 1996

From: KR4GL@aol.com

Subject: [4146] Re: Nightmares/Visions

Message-ID: <960211224846_141752244@emout06.mail.aol.com>

In a message dated 96-02-11 15:27:21 EST, you write:

>qrp-1@lehigh.edu

>I think I need professional help (but not until AFTER Dayton).

If you need professional help Ed, theres another 900 of us that do too, maybe
we can get a group rate ????

OK. Let's combine our concepts. Take the Yet Another Group Buy (YAGB) idea
and combine it with Byron's need for 900 shrink sessions, and get a YAGG (Yet
Another Group Grope). If you don't know what a group grope is you're too
young to remember the "60's."

72 de KR4GL

John (wating for Dayton) Foote

From qrp-1@lehigh.edu Sun Feb 11 22:22:48 1996

From: GREGOIRE@ENDOR.COM (ERNEST GREGOIRE)

Subject: [4123] Re: Portable PS for QRP+

Message-ID: <199602111634.LAA41232@nss2.CC.Lehigh.EDU>

>Ernie,

>You hit on my current interest/passion, solar panels.
Which one are you using? Is your power pack one of the self contained 6.5 or
8 ah units?
Any info will be greatly appreciated.
>
>Thanks and 73,
>
>Rick Robinson kf4ar
>rerobins@uncc.edu

Hello Rick,

The solar panel is a "Desert Storm", surplus panel. I bought it from a
a magazine ad, from Antennas West, I believe but I'm not sure now.
I worked 56 hours last week and cant think clearly enough now to
remember that, and I can't find the write up that came with the panel.

The panel puts out 20 volts and .5 amps. This is easily addapted to
ham use. I put a couple of diodes in series with each lead coming from
the panel to drop the voltage somewhat., I am building a new power regulator
from Jade products to better regulate the power feeding into the battery.

The regulator in the "Power Station" is vey poor. The unit is made in
China, probably with slave labor, it's real junk.

It is a great carrying case however, so I hope to use the case with the
present battery until it dies and then replace it in the same case.
I will pull the present regulator and use the Jade in is place as soon
as I get it built.

Spring will be here before you know it and I want to be ready for
field day type of contests and for fly fishing too.

I'm fixing up a closet in the ham shack for shelves and storage, and right
now it's a mess. I'll try to find the write up.

Mean while, try this out.

The SOLAR DEPOT
99 R WASHINGTON ST.
MELROSE MA. 02176

TEL 617-665-7609

EMAIL RMEUSE@WORLD.STD.COM

I picked up the address at the N.E. ARRL convention last summer.

73 de AA1IK

de AA1IK N.E.-QRP-C. # 202 (Lead by example, It is better to)
 QRP-L member #95. (pull a string than it is to push it.)

Ernie Gregoire
RR 1 Box 221
Canaan, NH. 03741

New England QRP Club, information
available on request by sending me a
S.A.S.E. or via E-mail.

e-mail : GREGOIRE@ENDOR.COM
packet : AA1IK@WA1WOK.FN43FE.NH.USA

From qrp-l@lehigh.edu Sun Feb 11 22:22:48 1996
From: Alan Kaul <kaul@netcom.com>
Subject: [4127] Re: xtals
Message-ID: <Pine.3.89.9602111007.A27772-0100000@netcom23>

Many, many years ago when I was a novice (KN7EHW---1958) and had to use crystals, I remember altering the frequency: making them increase in frequency by grinding, and making them decrease in frequency by adding a thin layer of pencil lead. The xtal types were FT243 as I recall (made by Texas Xtals, Petersen Radio, and various surplus houses). They had three Philips-type screws on the case which could be removed. One had to be very careful when handling the quartz wafer. (If I remember correctly, the abrasive used for grinding was a little bit of Bon-Ami powdered cleanser!)
Good luck and and if you try it, let us know how it works!

[<Alan Kaul, W6RCL>] kaul@netcom.com

From qrp-l@lehigh.edu Sun Feb 11 22:22:48 1996
From: adams@chuck.dallas.sgi.com (chuck adams)
Subject: [4140] Re: xtals
Message-ID: <199602112223.WAA06306@chuck.dallas.sgi.com>

When you grind crystals you will raise the frequency.

It is recommended that if you grind crystals do this mostly for the FT-243 mounting format. The microprocessor crystals and the newer sealed crystals have gold plating and you will destroy them trying to get them out, etc.

I worked my way through an undergraduate degree in Physics working for HP, James Knight, and Collins Radio doing this. I did this with Dr Virgil Bottom, author of one of the classic books on Quartz Crystals. Book is now outta print.

Grinding is not recommended for people trying to save a buck. I can tell you war stories 'til the cows come home.....

Some of the problems by doing it wrong:

- o Chirp
- o XTAL stops all activity (i.e. you killed it)
- o Drift introduced
- o Spurs

I'm not saying that you shouldn't do it. Just be careful. A long thread was written up on this a few years ago on the boatanchors reflector. Check it out.

FYI dit dit

--

Chuck Adams (K5FO CP-60) adams@sgi.com
Box 181150, Dallas, TX 75218-8150